



Salinity Management Plan

230 Martin Rd, Badgerys Creek, NSW, 2555

Prepared for: EMKC Cubed Pty Ltd
EP3390.002_v4 15 October 2025



230 Martin Road - SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS Matrix

Table 1 below sets out the Secretary's Environmental Assessment Requirements (SEARs) for the project. A consultant is identified against each SEAR matter. Each identified consultant will be responsible for addressing the relevant matter as part of the preparation of the State Significant Development Application (SSDA).

Table 2 sets out the additional Agency requirements and the consultant responsible for addressing these as part of the SSDA.

Table 1 SEARs requirements and responsible consultant

Item / Description	Responsibility
General Requirements	
<ul style="list-style-type: none"> ▪ Soils – an assessment of potential impacts on soil resources and riparian land on and near the site that includes: <ul style="list-style-type: none"> – A description of and assessment of potential impacts on soil resources and riparian land on and near the site, including impacts on the Wianamatta – South Creek riparian corridor, soil erosion, salinity and acid sulfate soils. – Details of earthworks, including cut and fill volumes, demonstrating consideration of the Connecting with Country Framework (2023) and landscape-led design – Description of the proposed erosion and sediment controls during construction – a geotechnical assessment that provides a comprehensive analysis of the development capability of the site. 	<ul style="list-style-type: none"> - Sections 1.5, 1.6

Table 2 Agency requirements and responsible consultant

Item / Description	Document Reference
Department of Planning and Environment (Biodiversity and Conservation)	

Salinity Management Plan

230 Martin Rd, Badgerys Creek, NSW, 2555

EMKC Cubed Pty Ltd
Level 11 37 York St
Sydney NSW 2000
via email: pawan.lala@emkc3.com

15 October 2025

Our Ref: EP3390.002_v4

LIMITATIONS

This Salinity Management Plan was conducted on the behalf of EMKC Cubed Pty Ltd for the purpose/s stated in **Section 1**.

EP Risk has prepared this document in good faith but is unable to provide certification outside of areas over which EP Risk had some control or were reasonably able to check. The report also relies upon information provided by third parties. EP Risk has undertaken all practical steps to confirm the reliability of the information provided by third parties and do not accept any liability for false or misleading information provided by these parties.

It is not possible in a Salinity Management Plan to present all data, which could be of interest to all readers of this report. Readers are referred to any referenced investigation reports for further data.

Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

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QUALITY CONTROL

Version	Author	Date	Reviewer	Date	Quality Review	Date
v1	T. Chatman	20.12.2023	P. Simpson	20.12.2023	A. Thomson	20.12.2023
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Brisbane
310 Edward Street
Brisbane QLD 4000
T 07 3506 0233

Newcastle
3/19 Bolton Street
Newcastle, NSW, 2300
T 02 4048 2845

Sydney
Suite 13.01, 80 Mount St
North Sydney, NSW, 2060
T 02 9922 5021

Melbourne
22/1 Ricketts Road
Mount Waverley, Vic, 3149
T 03 8540 7300

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Introduction

EP Risk Management Pty Ltd (EP Risk) was engaged by EMKC³ Management Pty Ltd (EMKC) to prepare a Salinity Management Plan (SMP) for the proposed development of two (2) contemporary warehouse or distribution centre buildings (the Development), located at 230 Martin Road, Badgerys Creek NSW 2555 (the Site). The SMP is limited to the western portion of the Site as provided within Figure 1.

The proposal seeks approval for two (2) contemporary warehouse or distribution centre buildings at 230 Martin Road, Badgerys Creek. Specifically, the development will comprise:

- Site clearance works, including the removal of existing structures and trees.
- Bulk earthworks and the installation and augmentation of utilities infrastructure and other services.
- Construction and operational use of two warehouse or distribution centres containing ancillary offices, amenities and manufacturing use (in lot 1 only) with associated, parking, landscaping and access.
- Other ancillary works.

The Development is located within a high salinity potential hazard area with reference to the Salinity Potential of Western Sydney mapping (2002)¹. Previous investigations conducted at the Site by Zoic (2021)², Fortify (2023)³ and EP Risk (2023⁴ & 2023a)⁵ identified the presence of potential salinity at the Site requiring further management. Following the findings of the previous investigations at the Site in relation to salinity, EP Risk was requested by the client to prepare an SMP in accordance with the requirements of section 5, “Environmental Health”, of the Planning Secretary’s Environmental Assessment Requirements (SEARs) for the Site.

1.1 Objective

The objectives of the SMP were to ensure that water quality, soil runoff, site wastewater and potential water contamination associated with Salinity are considered and effectively managed during the Proposed Development.

1.2 Scope of Works

The scope of works to satisfy the objectives comprised:

- Identify the potential for salinity issues to occur on the Site based on a review of Zoic (2021), Fortify (2023) and EP Risk (2023 & 2023a) and the nature of the Proposed Development.

¹ Salinity Potential of Western Sydney (2002), available online from the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW).

² Zoic, Preliminary Site Investigation, 230 Martin Road, Badgerys Creek (September 2021) (Zoic 2021).

³ Fortify Geotech, Report on Geotechnical Investigation – Proposed Industrial Development 230 Martin Road, Badgerys Creek (November 2023) (Fortify 2023).

⁴ EP Risk Management, Environmental Site Assessment, 230 Martin Road, Badgerys Creek, NSW 2555 (EP Risk 2023).

⁵ EP Risk Management, Detailed Site Investigation, 230 Martin Road, Badgerys Creek, NSW 2555 (EP Risk 2023a).

- Address the requirements of the relevant environmental legislation and statutory requirements as it applies to the Proposed Development.
- Summarise potential impacts on the environment from the works for the Proposed Development.
- Document environmental procedures that must be followed to control potential environmental impacts.
- Collect one (1) representative soil sample per hectare for Moderately intensive construction, waste and effluent disposal in accordance with Table 1 of Department of Land and Water Conservation (2002): Site Investigations for Urban Salinity.

1.3 Site Identification

Pertinent site identification details are presented in **Table 1** –

Table 1 – Site Identification	
Item	Description
Site Address	230 Martin Road, Badgerys Creek, NSW, 2555
Legal Description	Lot A in DP 406215
Approximate Assessment Area	8 ha ⁽⁶⁾
Site Area	24.28 ha
Municipality	Liverpool City Council
Zoning	Enterprise (ENT) and Environment and Recreation (ENZ).
Proposed Land Use	Industrial

⁶ The SMP is limited to the western portion of the Site as provided within Figure 1.

Review of Previous Investigations

EP Risk Management, Detailed Site Investigation, 230 Martin Road, Badgerys Creek NSW 2555 (EP Risk 2023)

The following key points were noted relating to salinity aspects of the investigation:

- The Site was identified to be located within an area of high hazard salinity potential, with reference to the Salinity Potential of Western Sydney (2002) mapping identified in the Lotsearch 2023⁷ report.
- Results of the laboratory testing generally indicated that the residual clays onsite are non-saline to very saline.

Table 2 - Summary of Salinity Results

Sample ID	Soil Description	EC (dS/m)	Multiplication Factor	ECe (dS/m)	Salinity Rating
TP01_0.5	Silty clay	0.095	9	0.855	Non-saline
TP02_1.0	Silty clay	0.596	9	5.364	Moderately saline
TP05_0.1	Silty sand	0.048	17	0.816	Non-saline
TP08_1.0	Sandy clay	0.359	8.5	3.0515	Slightly saline
TP10_0.5	Sandy clay	0.101	8.5	0.8585	Non-saline
TP14_1.5	Silty gravelly clay	0.204	9	1.836	Non-saline
TP19_0.5	Sandy clay	0.374	8.5	3.179	Slightly saline

Fortify Geotech, Proposed Industrial Development, 230 Martin Road, Badgerys Creek NSW Geotechnical Investigation Report (Fortify 2023)

The following key points were noted relating to salinity aspects of the investigation:

- The typical sequence of subsurface conditions encountered in the boreholes comprised:
 - Clayey silty sand (topsoil and fill)
 - Sandy clay
 - Silty clay
- Results of the laboratory testing generally indicated that the residual clays onsite are non-saline to very saline.

⁷ Lotsearch Enviro Pro (Lotsearch 2023), 230 Martin Road, Badgerys Creek, NSW, 2555, reference: LS044558 EP, dated 07 June.

Table 3 - Summary of Salinity Results					
Sample ID	Soil Description	EC (dS/m)	Multiplication Factor	ECe (dS/m)	Salinity Rating
TP12_2.0	Gravelly silty clay	0.96	9	8.64	Very saline
TP15_0.8	Sandy clay	1.11	8.5	9.35	Very saline
TP17_0.5	Sandy clay	0.15	8.5	1.275	Non-saline
TP20_1.0	Sandy clay	0.91	8.5	7.735	Moderately saline

EP Risk Management, Environmental Site Assessment, 230 Martin Road, Badgerys Creek NSW 2555 (EP Risk 2023)

The following key points were noted relating to salinity aspects of the investigation:

- In accordance with Western Sydney Salinity Code of Practice (WSROC) a Level 3 Salinity Management Response is recommended, and the Site should be further assessed for sodic or saline sub-soils and a site-specific management strategy developed.

Zoic (2021) Preliminary Site Investigation, 230 Martin Rd, Badgerys Creek (ref: 20062 R3)

The following key points were noted relating to salinity aspects of the investigation:

- The eastern portion of the Site is low-lying and falls within a flood plain. Evidence of overflow from South Creek and another minor drainage line during the recent heavy rain events was observed through the centre of the Site.
- The Site was within an area of salinity potential.

Salinity Management Plan

The relevant guidance to industrial developments in localities with high salinity potential and high dryland salinity risk is outlined in the following documents:

- Western Sydney Regional Organisation of Councils Ltd (2003, Amended 2004) Western Sydney Salinity Code of Practice.
- Department of Infrastructure, Planning and Natural Resources (2003): Building in a Saline Environment.
- Department of Infrastructure, Planning and Natural Resources (2003): Roads and Salinity.
- Department of Infrastructure, Planning and Natural Resources (2004): Waterwise Parks and Gardens.
- Department of Land and Water Conservation (2002): Site Investigations for Urban Salinity.

With reference to the recommendations of the management of soils with known salinity risk from the documents above, it is considered the disturbance of potentially saline soils in the event of future development of the Site would be likely. The management options recommended for future development are outlined herein.

Project Description

The Proposed Development seeks approval for two contemporary warehouse or distribution centre buildings at 230 Martin Road, Badgerys Creek. Specifically, the Proposed Development will comprise:

- Site clearance works, including the removal of existing structures and trees
- Bulk earthworks and the installation and augmentation of utilities, infrastructure, and other services
- Construction and operational use of two warehouse or distribution centres containing ancillary offices, amenities and manufacturing use (in lot 1 only) with associated, parking, landscaping and access
- Other ancillary works

1.4 Assigning Roles and Responsibilities

The key stakeholders responsible for the implementation of the control measures outlined in the SMP are presented in **Table 2**.

Table 4 – Roles and Responsibilities		
Role	Party	Responsibilities
Principal	TBD	To engage the consultants and contractors and undertake all stakeholder management.
Contractor	TBD	To carry out the civil works associated with the Proposed Works and ensure compliance with the SMP any work health and safety controls and construction environment management plan (CEMP). The Contractor must maintain written records of activities undertaken each day and manage any unexpected finds.
Sub-contractors	TBD	Toolbox meetings will be conducted with all subcontractors which will include Salinity component outlining the adopted management measures to address SSMP
Environmental Consultant	EP Risk	Periodic site inspections to review the effectiveness of salinity controls at the Site.

1.5 Environmental Impacts

The potential impacts of salinity from the Proposed Development include:

- Exposing saline / sodic soils to air in the vicinity of surface drains, basins or sensitive receptors causing erosion and release of salinity into the environment.
- Low permeability of the sodic soils restricting infiltration of surface water leading to ponding and erosion.
- The aggressivity and salinity of soil affecting the durability and longevity of concrete and steel structures.
- Removal of native vegetation leading to increased dryland salinity impacts on the surrounding area.

Elements of the Proposed Development will be designed to minimise excavations where practicable, however, excavations will be required and do have potential to intercept saline and sodic sub-soils.

1.6 Earthworks

1.6.1 Sediment and Erosion Controls

All sediment and erosion controls are to be installed prior to the commencement of any works and maintained throughout the course of construction until disturbed areas have been revegetated/established. Erosion and sediment controls should be outlined in a separate Progressive Erosion and Sediment Control Plan PESCP for the Site in accordance with the requirements of *Managing Urban Stormwater Soils and Construction* (Landcom, 2004). Types of erosion and sedimentation controls might include:

- Clean water diversion drains
- Sediment Basins
- Sumps
- Groundcover
- Sediment fences and/or similar objects

It is likely minor groundwater seepage flows will occur from cut faces during excavation works conducted at the Site, primarily along the interface of the residual clays and underlying shale bedrock and also through fractures in the rock. These could be collected through localised drainage measures (i.e., sump and pump) and re-infiltrated into the aquifer onsite or treated onsite and disposed to the sewer under a trade waste agreement (TWA).

1.6.2 Materials Management

Care must be taken to avoid the reversing or mixing the soil profile and disturbance of natural drainage patterns during earthworks operations across the Site which may negatively impact on the salinity profile.

Filled areas should be capped with a more permeable material, revegetated and adequate surface drainage infrastructure installed to avoid excessive infiltration, minimise salt leaching and soil erosion. Capping of the upper surface of the sodic soils near structures will also reduce the effect of capillary rise, act as a drainage layer and reduce the potential for dispersive behaviour and erosion in the sodic soils.

Where possible materials used in the construction of fill embankments should be selected to contain minimal or no salt. Under circumstance where saline soils are exposed in cut or excavated then placed as filling, a permeable capping layer should be placed. The addition and mixing of gypsum into sodic soils can also be considered where appropriate, including where sodic soils are exposed on slopes to improve soil structure and minimise erosion potential.

Stockpiles should have adequate controls in place for erosion, covering and stabilisation and should be placed sufficiently away from any watercourses.

1.7 Water Inputs

Underground water carrying pipes (including wastewater) and on-site sewerage systems (if relevant) should be properly installed to eliminate leaks with regular maintenance and/or checking for leaks. Changes to the on-site water balance may have an adverse effect to salinity potential.

Groundwater recharge is to be minimised by implementation of the following (where relevant to the proposed development design):

- Directing runoff from paved areas (roads, car parks, domestic paving etc) into lined stormwater drains rather than along grassed channels.
- Lining of ponds and water sensitive urban design water bodies to avoid groundwater recharge.
- Encouraging on site detention of roof runoff and use of low water demanding plants.
- Encouraging tree planting, especially adjacent to watercourses.
- The use of recycled wastewater for the watering of domestic gardens should be minimised.

1.8 Stormwater and Drainage

The following should be considered in the design of stormwater and drainage systems on-site:

- Underground water carrying pipes (including wastewater) and onsite sewerage systems (if relevant) should be properly installed to eliminate leaks with regular maintenance and/or checking for leaks.
- The constructed wetland must minimise potential groundwater recharge and run-off.
- Services should be joint trenched where possible.
- Water supply pipes must be copper or a non-metal acceptable to Sydney Water.
- Sewer pipes must be un-plasticised Polyvinyl Chloride (PVC) or other material acceptable to Sydney Water.
- The design slope of exposed/open concrete slabs and surrounding areas should be designed to minimise ponding and the potential for increased infiltration.
- Slab, foundations and retaining walls designed to allow good drainage / minimise water logging.
- Existing areas of waterlogging and poor drainage should be remedied prior to development construction.
- Design and layout of retaining walls, driveways and service connections reduces cut, minimises impediment of natural groundwater flows and provides for good drainage.
- Guttering and down pipes properly connected and maintained.
- Infiltration trenches should be avoided as this could lead to waterlogging and subsequent salinisation of soils onsite.

1.9 Vegetation

The following should be considered in the design in regard to vegetation on the Site:

- Areas of established vegetation are to be maintained and protected where practicable.
- The vegetation should be designed to retain as much of the natural site water balance as possible. i.e. limiting the removal of deep-rooted trees that reduce the water table rising to the surface.
- Salt tolerant plants should be utilised as much as possible.
- Landscaping plans should adopt principles outlined in the Department of Infrastructure, Planning and Natural Resources (2004): Waterwise Parks and Gardens document.
- Irrigation systems should be properly installed to avoid leakage and 'smart' sprinkler systems considered.
- Re-use of non-saline soils sources from the Site or imported into the Site in landscaped gardens where practicable.

1.10 Building Construction and Design

Given the Site is considered to contain saline and sodic sub-soils, there is a requirement to minimise the exposure to building materials of these soils. Australian Standards for piling design and installation, concrete structures, masonry structures, residential slabs and footings or any other relevant standard or provision referred to for salinity under the Building Code of Australia and Council's Engineering Design Specifications should be consulted for specific salinity design and management requirements.

Where buildings are to be constructed directly on susceptible or exposed areas, then consideration of the following precautions should be adopted in the construction process:

- Install a properly constructed damp proof course beneath buildings, paths and driveways.
- Consideration should be given to the need for salt and resistant bricks and construction materials where applicable. A corrosion expert should be consulted to assess the compatibility of building materials with soil conditions at the Site.
- Susceptible construction materials should be avoided, i.e. porous materials.

The following should be considered in the design of roads and pavement:

- Inclusion of appropriate sub-surface drainage that does not divert moisture to road layers.
- Choose road materials that are not susceptible to corrosion.

Conclusion

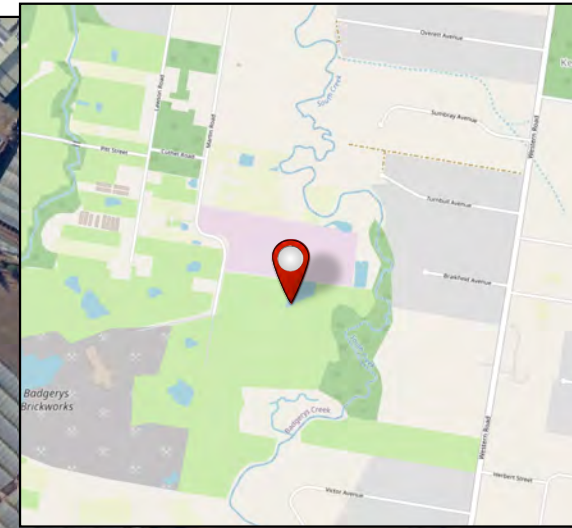
The SMP was conducted to identify the potential for salinity issues to occur during the Proposed Development based on a review of Zoic (2021), Fortify (2023) and EP Risk (2023 & 2023a), describe the nature of the Proposed Development within that context, and provide recommendations on the management of salinity during the construction phase of the Proposed Development.

Based on the results of the assessment saline sub-soils were identified at the Site which requires the implementation of this SMP. The management strategies and controls detailed within this SMP are considered appropriate to mitigate the identified saline sub-soils during the construction phase of the Proposed Development at the Site.

The structural design should consider the potential for soils onsite to be mildly or moderately aggressive to steel and concrete. This SMP should be considered as part of a greater Site Environmental Management Plan for the construction phase of the site operations.

Appendix A

FIGURE 1



Legend





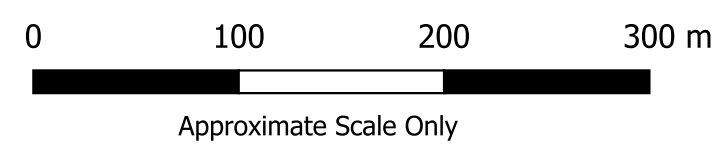
-  Site Boundary
-  Approximate Development Boundary
-  Approximate Sample Locations
-  Salinity Samples

Figure 1 - Approximate Salinity Sampling Locations



Appendix B

Salinity Analytical Summary Table

					Sodicity					Salinity						
					Exchangeable Sodium Percent	Exchangeable Sodium	CEC	pH (Lab)	Sodicity Classification	Exchangeable Potassium	Electrical Conductivity	Exchangeable Magnesium	Exchangeable Calcium	Multiplication Factor	ECe (dS/m)	Salinity Classification
					%	meq/100g	meq/100g	-	-	meq/100g	dS/m	meq/100g	meq/100g	-	dS/m	-
EQL					0.1	0.1	0.1	0.1	-	0.1	1	0.1	0.1	-	-	-
Field ID	Matrix Type	Strata	Depth (mBGL)	Date												
TP01_0.5	Soil	silty CLAY	0.5	23 Oct 2023	18.7	1.5	8.3	7.8	Highly Sodic	0.4	0.095	6.0	0.3	9	0.855	Non-Saline
TP02_1.0	Soil	silty CLAY	1	23 Oct 2023	33.1	1.0	3.0	5.2	Highly Sodic	<0.1	0.596	2.0	<0.1	9	5.364	Moderately saline
TP05_0.1	Soil	silty sand	0.1	23 Oct 2023	5.5	0.5	9.6	6.4	Sodic	1.0	0.048	4.3	3.8	17	0.816	Non-Saline
TP08_1.0	Soil	sandy CLAY	1	23 Oct 2023	27.2	0.9	3.3	4.9	Highly Sodic	<0.1	0.359	2.3	0.1	8.5	3.0515	Slightly saline
TP10_0.5	Soil	sandy CLAY	0.5	23 Oct 2023	11.0	1.5	13.6	6.3	Sodic	0.4	0.101	9.2	2.5	8.5	0.8585	Non-Saline
TP14_1.5	Soil	sandy gravelly clay	1.5	23 Oct 2023	21.9	2.6	12.0	6.8	Highly Sodic	0.1	0.204	9.0	0.2	9	1.836	Non-Saline
TP19_0.5	Soil	sandy CLAY	0.5	23 Oct 2023	21.7	1.6	7.3	5.6	Highly Sodic	<0.1	0.374	5.3	0.3	8.5	3.179	Slightly saline
Geotech Results																
TP12_2.0	Soil	gravelly silty CLAY	2	23 Oct 2023	-	-	-	-	-	-	0.96	-	-	9	8.64	Very saline
TP15_0.8	Soil	sandy CLAY	0.8	23 Oct 2023	-	-	-	-	-	-	1.11	-	-	8.5	9.35	Very saline
TP17_0.5	Soil	sandy CLAY	0.5	23 Oct 2023	-	-	-	-	-	-	0.15	-	-	8.5	1.275	Non-saline
TP20_1.0	Soil	sandy CLAY	1	23 Oct 2023	-	-	-	-	-	-	0.91	-	-	8.5	7.735	Moderately saline

